# Hiroshi Nakaso: Japan's economy and monetary policy

Speech by Mr Hiroshi Nakaso, Deputy Governor of the Bank of Japan, at a meeting with business leaders, Okinawa, 3 March 2016.

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*Accompanying charts can be found at the end of the speech.*

## Introduction

It is my pleasure to have the opportunity today to exchange views with administrative, financial, and business leaders in Okinawa Prefecture. I would like to take this opportunity to express my sincerest gratitude for your cooperation with the activities of the Bank of Japan's Naha Branch.

At the Monetary Policy Meeting held at the end of January 2016, the Bank decided to introduce "Quantitative and Qualitative Monetary Easing (QQE) with a Negative Interest Rate." Today, before exchanging views with you, I would first like to explain the Bank's view on the recent developments in and outlook for economic activity and prices. I will then move on to its recent conduct of monetary policy while elaborating on "QQE with a Negative Interest Rate" that the Bank has decided to introduce.

## I. Recent developments in and outlook for economic activity and prices at home and abroad

### *Current situation of Japan's economic activity and the bank's projection in the January 2016 outlook report*

To start with, let me talk about economic developments in Japan. Although global financial markets have been volatile since the turn of the year, I believe there is no need to be too pessimistic as the fundamentals of Japan's economy have been firm.

With regard to Japan's recent economic activity, domestic demand has followed an uptrend, with a virtuous cycle from income to spending being maintained in both the household and corporate sectors. In the corporate sector, profits clearly have continued to improve, reaching a record high, with support from an improvement in the real economy as well as the low crude oil prices and the correction of the yen's appreciation (Chart 1). Against this background, business fixed investment has been on a moderate increasing trend. In the household sector, labor market conditions have continued to tighten. The active job openings-to-applicants ratio and the diffusion index for employment conditions in the December 2015 Short-Term Economic Survey of Enterprises in Japan (*Tankan*) have improved to almost the same levels as around the first half of 1992. Moreover, the unemployment rate has been declining and in the range of 3.0–3.5 percent for the first time since 1997. The labor market is in a situation close to "full employment," where unemployment is due solely to mismatches between job openings and job applicants (Chart 2). Reflecting the tightening of labor market conditions, employee income has been increasing moderately. Under such steady improvement in the employment and income situation, private consumption has been resilient.

Looking ahead, domestic demand is likely to follow an uptrend, with a virtuous cycle from income to spending being maintained in both the household and corporate sectors. Exports are expected to increase moderately on the back of emerging economies moving out of their deceleration phase. Against this backdrop, Japan's economy is likely to be on a moderate expanding trend. As in the January 2016 *Outlook for Economic Activity and Prices* (Outlook Report), it is estimated that the economy will continue growing at a pace above its potential through fiscal 2016. In fiscal 2017, it is projected to maintain positive growth, although with a slowing in its pace to around a level somewhat below the potential growth rate, reflecting the effects of a front-loaded increase and subsequent decline in demand prior to and after the consumption tax hike, as well as the cyclical developments in the economy. The medians of the Policy Board members' forecasts for the real GDP growth rates are also indicated in the January Outlook Report, and those for fiscal 2015, 2016, and 2017 are 1.1 percent, 1.5 percent, and 0.3 percent, respectively (Chart 3).

### *Price developments in Japan and the outlook*

Let me now turn to price developments in Japan. A significant change in price developments has been observed after the introduction of QQE. The year-on-year rate of change in the consumer price index (CPI, all items less fresh food), which had been minus 0.5 percent before the introduction of QQE, improved to as high as 1.5 percent in April 2014, excluding the effects of the consumption tax hike (Chart 4). Thereafter, the year-on-year rate of change in the CPI has declined, marking about 0 percent recently, but this was largely attributable to a substantial fall in crude oil prices since summer 2014. As for the underlying trend in inflation, the year-on-year rate of change in the CPI excluding fresh food and energy – both of which are with large fluctuations – had been negative before the introduction of QQE, but turned positive in October 2013. Since then, it has remained positive for 28 consecutive months and increased to 1.1 percent recently. The share of price-increasing items minus the share of price-decreasing items in the CPI has been increasing clearly, suggesting that price rises have been observed in a wide range of goods and services (Chart 5).

In brief, the forecasts of the CPI (all items less fresh food) are obtained by adding the underlying trend in inflation to the contribution of energy items to the CPI. The January Outlook Report assumes that Dubai crude oil prices will rise moderately from the recent 35 U.S. dollars per barrel to the range of 45–50 dollars per barrel toward the end of fiscal 2017, which marks the end of the projection period. The contribution of energy items to the year-on-year rate of change in the CPI (all items less fresh food) is estimated to be slightly more than minus 1 percentage point and is at its highest level recently. However, under the aforementioned assumption of crude oil prices, the contribution is projected to decrease. Meanwhile, since the underlying trend in inflation is likely to rise steadily, this is likely to be seen clearly in the year-on-year rate of change in the CPI. Therefore, the underlying trend in inflation has been improving steadily and the baseline scenario would be as follows: the year-on-year rate of change in the CPI is likely to accelerate toward the price stability target of 2 percent as the economy is likely to be on a moderate expanding trend. Taking these factors into account, the year-on-year rate of change in the CPI (all items less fresh food) is projected to reach around 2 percent – the price stability target – around the first half of fiscal 2017.

### *Global financial markets and overseas economies*

On the other hand, global financial markets have been nervous since the turn of the year; the yen has appreciated as investors sought a safe haven due to elevated risk aversion against the backdrop of declining global stock prices resulting from the further decline in crude oil prices and looming uncertainty such as over future developments in the Chinese economy. Next, I would like to explain the current situation of and outlook for overseas economies that are creating turmoil in global financial markets.

To give an overview of the recent developments, overseas economies – mainly advanced economies – have continued to grow at a moderate pace on the whole, despite the slowdown in emerging economies. By region, the U.S. economy has continued to steadily recover, reflecting the firmness in household spending. Some market participants are holding a cautious view toward developments in the U.S. economy, but no new concerns are being observed, and therefore I suppose their view is too pessimistic. The European economy also has continued to recover moderately (Chart 6).

It is true that the Chinese economy, which has been attracting the world's attention, has continued to be in a state of deceleration due to downward pressure from an overhang of production capacities and inventory adjustments in the manufacturing sector (Chart 7). Other emerging economies and commodity-exporting economies as a whole also remain in a situation of deceleration, as the effects of the slowdown in the Chinese economy have spread to them and as the decline in commodity prices has been protracted. Some economies in Asia, however, have seen a pick-up in IT-related demand. Looking ahead, the Chinese economy is likely to broadly follow a stable growth path, albeit at a somewhat slower pace mainly in the manufacturing sector, as authorities proactively carry out policy measures to support economic activity. Other emerging economies and commodity-exporting economies as a whole are expected to gradually increase their growth rates, due mainly to the effects of the recovery in advanced economies and of economic stimulus measures, although some commodity-exporting economies are likely to remain in a situation of deceleration for the time being.

## II. The bank's Monetary Policy Management

### *Basic mechanism of monetary easing*

However, after the turn of the year, the global financial markets have continued to be volatile, as I have mentioned earlier. At the Monetary Policy Meeting held at the end of January 2016, many Policy Board members pointed out that there is an increasing risk that such volatility in global financial markets might delay an improvement in business confidence of Japanese firms and conversion of the deflationary mindset, and might also negatively affect the underlying trend in inflation. To preempt the manifestation of this risk and to maintain momentum toward achieving the price stability target of 2 percent, the Bank decided to introduce "QQE with a Negative Interest Rate."

Now, I would like to focus on the Bank's monetary policy management. To begin with, let me review the basic transmission mechanism of monetary easing that the Bank had pursued, and then talk about the newly introduced "QQE with a Negative Interest Rate."

Generally speaking, the main transmission channel of monetary easing would be as follows: it will cut the real interest rate – that is, interest rate adjusted by inflation expectations – and stimulate economic activities such as business fixed investment and housing investment. Inflation expectations are taken into account because, if prices are expected to rise, corporate profits and wages also are likely to increase, and thus the real interest rate, which means the real cost of borrowing, will become lower than the nominal interest rate.

When deciding to what extent the real interest rate should be lowered, policymakers can focus on the natural rate of interest as a reference level. Every country has its own natural rate of interest, which is neutral to economic activity in that it will neither accelerate nor decelerate the economy. The effects of monetary easing will be produced by reducing the real interest rate to a lower level compared to the natural rate of interest. In general, the natural rate of interest will be determined largely by the potential growth rate, which represents the economy's growth potential. In Japan, the potential growth rate was in the range of 3–4 percent during the 1980s but declined significantly after the turn of the 1990s. Recently, it is estimated to be around 0.5 percent or lower.

Bearing these factors in mind, monetary policy since the 1990s can be summarized as follows. With the aim of taking measures to bring about recovery following the economic recession after the burst of the bubble, the Bank gradually cut the policy interest rates. As a result, short-term interest rates reached approximately 0 percent at the end of the 1990s. However, at the same time, the potential growth rate became low, and accordingly the natural rate of interest declined. Even though the Bank had lowered the nominal short-term interest rate to 0 percent, it was unable to reduce the real interest rate to a level significantly below the natural rate of interest due to the widely spread deflationary sentiment among the public.

In order to make a breakthrough in this situation, the Bank introduced QQE in April 2013. This policy measure aimed at lowering the real interest rate by two means (Chart 8). The first is to raise inflation expectations through the Bank's strong commitment to achieving the price stability target of 2 percent at the earliest possible time. The second is to make use of the room for lowering the nominal interest rate. Although short-term interest rates already had declined to as low as 0 percent, long-term interest rates still had room to fall. Therefore, the Bank decided to massively purchase Japanese government bonds (JGBs), thereby putting downward pressure across the entire yield curve; i.e., not only short-term interest rates but also long-term interest rates including 10-year JGBs, as well as super-long-term interest rates of JGBs with maturities of 20 years or longer.

By referring to some specific data, let me briefly explain how the intended effects have been spreading so far. Yields on 10-year JGBs already had been lowered to a record low level before the Bank decided to introduce "QQE with a Negative Interest Rate," and thus the entire yield curve has been pushed down to an extremely low level (Chart 9). At the same time, inflation expectations have been rising on the whole from a somewhat longer-term perspective. According to various survey-based indicators, inflation expectations generally have been raised by about 0.5 percentage point under QQE (Chart 10). The decline in the nominal interest rate and the rise in inflation expectations suggest that the real interest rate has been largely pushed down. In fact, after the introduction of QQE, the real interest rate has remained in negative territory. Thus, as I have mentioned, the real interest rate, having declined to the record low level, stimulated domestic demand, resulting in a moderate recovery in Japan's economy and an improvement in the underlying trend in inflation.

### *Zero lower bound of interest rates and framework for "QQE with a negative interest rate"*

The newly introduced "QQE with a Negative Interest Rate" maintains and reinforces the basic mechanism of QQE, which has produced its intended effects. For a long period of time, a common understanding has made us believe that the nominal interest rate cannot fall below the zero lower bound. However, at present, some central banks in Europe, including the European Central Bank (ECB), are in fact implementing negative interest rate policies.

The following two points were considered to be reasons why the nominal interest rate cannot turn negative. First, financial institutions' profits would be squeezed if a negative interest rate were applied to their current accounts at the central bank. If a negative interest rate were to massively squeeze financial institutions' profits – which I would view as an extreme case – functioning of financial intermediation could be hampered and, as a result, the intended effects of monetary easing would wane. Second, a larger negative interest rate would incentivize financial institutions to withdraw more cash from their current accounts at the central bank in an attempt to avoid a negative interest rate being applied. Since financial institutions, by holding a large amount of cash, have to suffer various costs including that of delivery and storage, as well as run new risks such as theft, it is unlikely that they will largely replace their current account balances with cash holdings as soon as the interest rate on current accounts becomes negative. This implies, however, that there could be a certain limit to the depth of the negative interest rate. In other words, if these two concerns were dispelled, negative short-term interest rates could be formed by applying a negative interest rate to current accounts at the central bank, thereby pushing down the short end of the yield curve.

The Bank came up with a solution to the challenges regarding a negative interest rate. This is "QQE with a Negative Interest Rate," through which the outstanding balance of each financial institution's current account at the Bank will be divided into three tiers and a negative interest rate will only be applied to a certain tier. The three-tier system has been adopted partly in consideration of the impact on financial institutions' profits as well

(Chart 11). The outstanding balance of current accounts is divided into three tiers, and a positive interest rate of 0.1 percent will continue to be applied to a vast majority of an existing balance. Practically, as the "first floor" of the three-tier system, the "Basic Balance" is defined as the average outstanding balance of current accounts in January through December 2015. In the "Basic Balance," the 0.1 percent positive interest rate continues to be applied to about 210 trillion yen; in other words, the amount outstanding exceeding the required reserves, to which a zero interest rate had been applied under the old scheme.

Next, a zero interest rate will be applied to the "second floor." For the most part, the second floor is intended to keep the amount to which a negative interest rate is applied from building up over time. Therefore, the balance of the "second floor" will be adjusted at an appropriate timing in the future. Some lending programs by the Bank, such as the Loan Support Program and the funds-supplying operation to support financial institutions in disaster areas, will be implemented at a zero lending rate from now on. A zero interest rate will be applied to the amounts outstanding of these facilities so that a negative margin incurred between lending rates and the interest rate applied to the corresponding balance of current accounts at the Bank would not disincentivize financial institutions from using the facilities. In a similar vein, the interest rates applied to the required reserves will continue to be zero.

A negative interest rate of minus 0.1 percent will be applied only to a portion of current account balances exceeding the amounts outstanding of the "first" and "second" floors. This is the "third floor" of the three-tier system and is called the "Policy-Rate Balance" as a negative interest rate is applied in the course of monetary policy. Admittedly, it is true that an interest rate of minus 0.1 percent is applied to current account balances at the Bank, but in practice, as I just explained, a negative interest rate is applied only to the "Policy-Rate Balance." At the start of the negative interest rate policy, the balance amounts to about 10 trillion yen, consisting of a small portion of the total current accounts outstanding of about 260 trillion yen.

Therefore, an adverse impact on financial institutions' profits will be largely mitigated while the negative interest rate policy will powerfully produce its intended effects of pushing down the short end of the yield curve. This is because prices of any new financial transactions such as JGB transactions are determined based on a "marginal" cost, as economic jargon puts it. Consequently, a negative interest rate of minus 0.1 percent applied to a marginal increase in the current account balances at the Bank will define the short end of the yield curve.

Besides the costs incurred by holding current account deposits at the Bank, the downward shift of the entire yield curve itself admittedly can have a negative impact on financial institutions' profits. It should be noted that this is always the case with monetary easing in general and there is nothing special with a negative interest policy in this regard: the gist is that it is a mere reflection of monetary easing effects. Looking ahead, as the negative interest rate policy will exert its intended effects, private demand such as business fixed investment and housing investment is expected to increase. In that sense, the negative interest rate policy will accelerate the process of overcoming deflation. This could be a quicker way to get out of the low interest rate quagmire as well as bring about favorable business conditions for financial institutions. Financial institutions may want to properly consider this point, and we do hope that they will proactively explore potential borrowing needs, thereby creating new business opportunities.

### *Spillover effects of "QQE with a negative interest rate"*

In addition to the transmission mechanism for QQE, which intends to push down long-term interest rates through massive purchases of JGBs, "QQE with a Negative Interest Rate" aims to lower the short end of the yield curve by applying a negative interest rate of minus 0.1 percent to a certain tier of current accounts at the Bank, thereby exerting further downward pressure on interest rates across the entire yield curve. "QQE with a Negative Interest Rate" already has brought tangible effects. The JGB yield curve has been declining further; yields on shorter-than-around 10-year JGBs have been negative (Chart 9). Reflecting the declines in JGB yields, financial institutions' benchmark lending rate and housing loan interest rates also have been declining clearly. Looking ahead, I am confident that the effects of the declines in these interest rates will steadily spread to the real economy and prices.

Some may have concern that financial institutions' retail deposit interest rates also might turn negative. Admittedly, each financial institution makes its own decision on interest rates for their depositors. In the meantime, I would like to emphasize that negative retail deposit interest rates are hardly seen even in some European countries, where a negative interest rate policy has already been adopted with much lower rates compared to Japan – minus 0.75 percent in Switzerland, for example. Given those European experiences, I am sure that there are no grounds for retail deposit interest rates turning negative in Japan (Chart 12).

Under a negative interest rate policy, there is no doubt that a wide range of interest rates will decline. However, this does not mean that deposit interest rates will turn negative owing to the monetary policy. Rather, this policy will bring about positive effects on borrowers through a declining cost of borrowing. In the wake of "QQE with a Negative Interest Rate," housing loan interest rates, for example, have declined more significantly than deposit interest rates, which already had been extremely low. The decline in housing loan interest rates will spur housing investment and lead to economic expansion. The unquestionable fact is that, not just a negative interest rate policy, but any kind of monetary easing reduces interest rates. The changes in interest rates could have different effects across individual entities in the short term; however, looking at the economy as a whole, a decline in interest rates brought about by monetary easing would likely stimulate domestic demand and expand the economy.

### *The bank's determined commitment toward overcoming deflation and sustainable economic growth*

Japan has been mired in deflation for more than 15 years. For Japan to achieve sustainable economic growth in the future, the utmost priority is to overcome deflation at the earliest possible time. In order to indicate its unwavering will to attain this target, the Bank decided to introduce "QQE with a Negative Interest Rate." Japan's economy has steadily progressed toward overcoming deflation for the past three years after the introduction of QQE, but we are only halfway to achieving the price stability target. Meanwhile, the Bank has devised the framework of monetary policy in various ways so as to adjust to economic and financial developments.

Related to this point, I will touch on the supplementary measures decided at the Monetary Policy Meeting in December 2015 to facilitate smooth implementation of QQE. Specifically, we took the measures of (1) expanding eligible collateral for the Bank's provision of credit and (2) extending the average remaining maturity of JGB purchases. As for the expansion of eligible collateral, as the Bank continues its massive purchases of JGBs, the amount of eligible collateral of private financial institutions has been on the decrease. Expanding the range of eligible collateral will contribute to smooth asset purchases in the future. As for the extension of the average remaining maturity of JGB purchases, it aims at more flexible and smooth asset purchases while assuring liquidity in the JGB markets. As is indicated by these measures, not only "a negative interest rate" but additional monetary easing in terms of "quantity" and "quality" dimensions will naturally remain a policy option. I am convinced that this new policy framework will be a drastic measure to fulfill the Bank's responsibility to overcome deflation.

### *Raising growth potential of Japan's economy and monetary policy*

In order to achieve sustainable economic growth, Japan's economy inevitably should tackle the challenges to raising medium-term growth potential, on top of overcoming deflation. As I have noted, the potential growth rate in Japan is estimated to have declined to around 0.5 percent or lower. Taking a shrinking population as a given, an overall increase in labor productivity will be a key to raising the potential growth rate. In this sense, looking ahead, a structural reform needs to be promoted not only in an economic context but also in a social context, and should focus on developing a productivity-enhancing mechanism and environment. I strongly expect the government to continue committing to such a structural reform without loosening the reins.

The Bank also can contribute to raising the growth potential because powerful monetary easing will dispel people's deflationary mindset and provide a favorable environment for firms to make investment proactively and take actions to improve productivity. Furthermore, while the Bank has been purchasing exchange-traded funds (ETFs) at an annual pace of about 3 trillion yen under QQE, it additionally has established a new program for purchasing ETFs at an annual pace of about 300 billion yen, composed of stocks issued by firms proactively investing in physical and human capital. This program will be enacted next month. We already have received various encouraging opinions and comments from market participants in the run-up to the start-up of the new program on which we place our hope for enhancing growth potential. With such encouragement, we are working diligently on setting eligible criteria and the operational framework for purchases.

As I have noted so far, I believe that monetary policy to overcome deflation and the structural reform to raise the potential growth rate must be pursued in tandem to bring Japan's economy back on track toward sustained growth. Now that the Bank of Japan has taken monetary easing one step further by introducing "QQE with a Negative Interest Rate," I expect the original third arrow of Abenomics, the growth strategy, to fly higher and faster. Moreover, I hope that households and firms will take bold steps towards economic prosperity, making full use of the current financial environment, which is more accommodative than ever.

## Conclusion

In concluding, let me touch on the economy of Okinawa Prefecture.

The economy has continued to expand on the whole. This is attributable to a high level of public investment and to an increase in tourism demand mainly supported by the weaker yen, an increase in the volume of international flights, and the easing of visa requirements. The buoyant construction and tourism sectors have been leading the expansion of corporate activity, which has steadily improved the employment and income situation. In terms of private consumption recently, more consumers are inclined to purchase high-end products. These developments point to a virtuous cycle from income to spending being in operation. This is evidenced in the Naha Branch's September and December *Tankan* last year, in which business sentiment registered a new record high for two consecutive quarters.

Let me focus on buoyant tourism demand. Led by a significant increase in tourists from China and other foreign regions, the number of tourists to Okinawa Prefecture in 2015 increased by 0.7 million from a year earlier and registered a new record high, marking 7.76 million in total. Even after the turn of the year, its increasing trend has continued, and the effects of the slowdown in the Chinese economy have not been observed thus far. As tourism demand increases, hotel occupancy rates and spending per tourist have been rising. I have heard that, due to an increase in tourists from overseas, many domestic tourists even had to give up visiting the prefecture during the high season last year. This uptrend in tourism demand is likely to continue on the back of the overseas travel boom seen in neighboring economies and an expansion of the runways at the Naha Airport. Okinawa Prefecture has been assigned as the National Strategic Special Zone for international tourism, leading to an increase in domestic fixed investment, such as construction of hotels. Increasing demand for duty free goods and souvenirs is reflected in favorable corporate profits in the retail and wholesale sectors.

With regard to the outlook for the tourism industry, the major industry in Okinawa Prefecture, the prefecture aims at achieving 1 trillion yen in tourism revenue and 10 million tourist arrivals. With the aim of attaining these targets, it plans to develop the world's highest quality resort area in an attempt to attract high-end inbound tourists. To realize this goal, it is vital to make the best use of its nature-rich environment as well as historical and cultural properties that have been inherited from the Ryukyu Kingdom dating back to the 15th century, while further upgrading the tourism industry.

In terms of efforts to make use of its geographical characteristics, on the logistics front, the setting up of the Okinawa international logistics hub that aims to enable high-speed transportation to major Asian cities has been progressing steadily. The decision has been made to build a new international convention facility, with an expectation that this will encourage demand for MICE (i.e., meeting, incentive, convention, and exhibition/event) and promote business matching. The creation and improvement of infrastructures are likely to largely contribute to further development of Okinawa Prefecture in line with economic growth in neighboring economies.

There is an old phrase in Okinawa Prefecture: *bankoku shinryo* (i.e., bridge between nations). I heard that the origin of this phrase goes back to the 15th century, when the Ryukyu Kingdom – which was in close proximity to Japan, China, Korea, and Southeast Asian regions – prospered as a transit trade country. *Bankoku shinryo* expresses that the Ryukyu Kingdom will serve as a bridge that connects the entire world through its trading vessels, making use of geographical advantages. This phrase fits today's Okinawa Prefecture even better, since it provides bridges between countries all over the world in terms of not only a gateway of international logistics but also a tourism site.

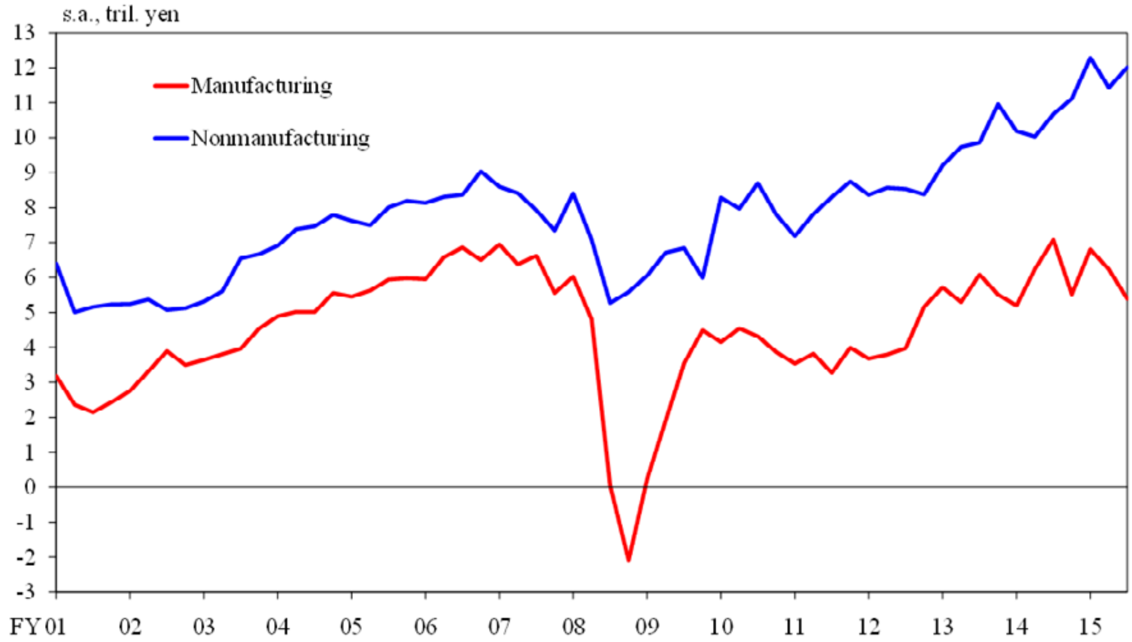
The Bank, centering on its Naha Branch, hopes to contribute as much as possible to further development that takes full advantage of the economic features of the prefecture.

In closing, I wish all the best for the further development of the economy of Okinawa Prefecture.

Thank you.

Chart 1

# Corporate Profits: Current Profits




Note: Figures exclude those for the finance and insurance industries.
Source: Ministry of Finance.

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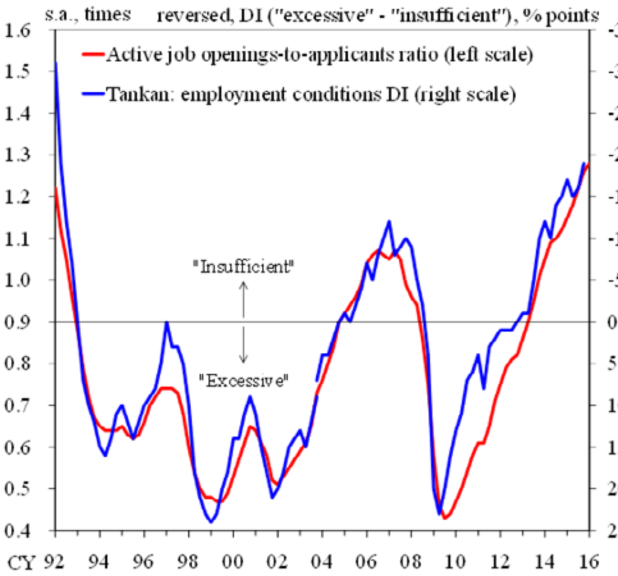
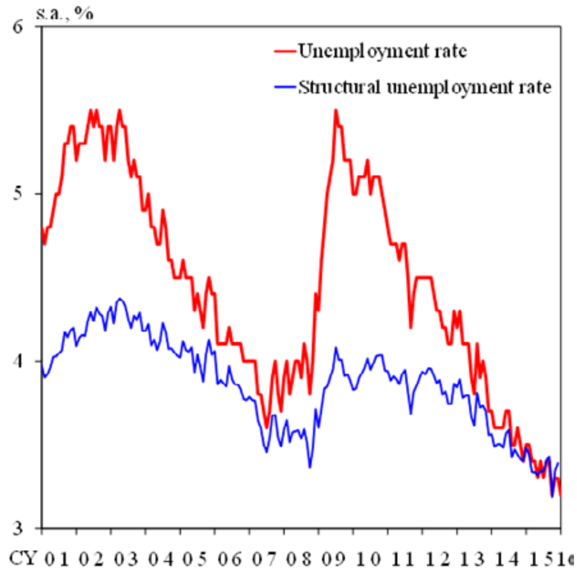
Chart 2

# Labor Market Conditions

*Job Openings-to-Applicants Ratio and Employment Conditions DI*




*Unemployment Rate*




Notes: 1. There is a discontinuity in the data in December 2003 for employment conditions DI due to a change in the survey framework.
2. The structural unemployment rate is estimated by the Research and Statistics Department, Bank of Japan.
3. The figure for 2016/Q1 is that of January.
Sources: Ministry of Health, Labour and Welfare; Bank of Japan; Ministry of Internal Affairs and Communications.

2

Chart 3

## Outlook for Economic Activity and Prices (as of January 2016)

y/y % chg.

| | Real GDP | CPI (all items less fresh food) | Excluding the effects of the consumption tax hikes |
|---|---|---|---|
| Fiscal 2015 | +1.1 | +0.1 | |
| Forecasts made in October 2015 | +1.2 | +0.1 | |
| Fiscal 2016 | +1.5 | +0.8 | |
| Forecasts made in October 2015 | +1.4 | +1.4 | |
| Fiscal 2017 | +0.3 | +2.8 | +1.8 |
| Forecasts made in October 2015 | +0.3 | +3.1 | +1.8 |

Note: Figures indicate the median of the Policy Board members' forecasts (point estimates).
Source: Bank of Japan.

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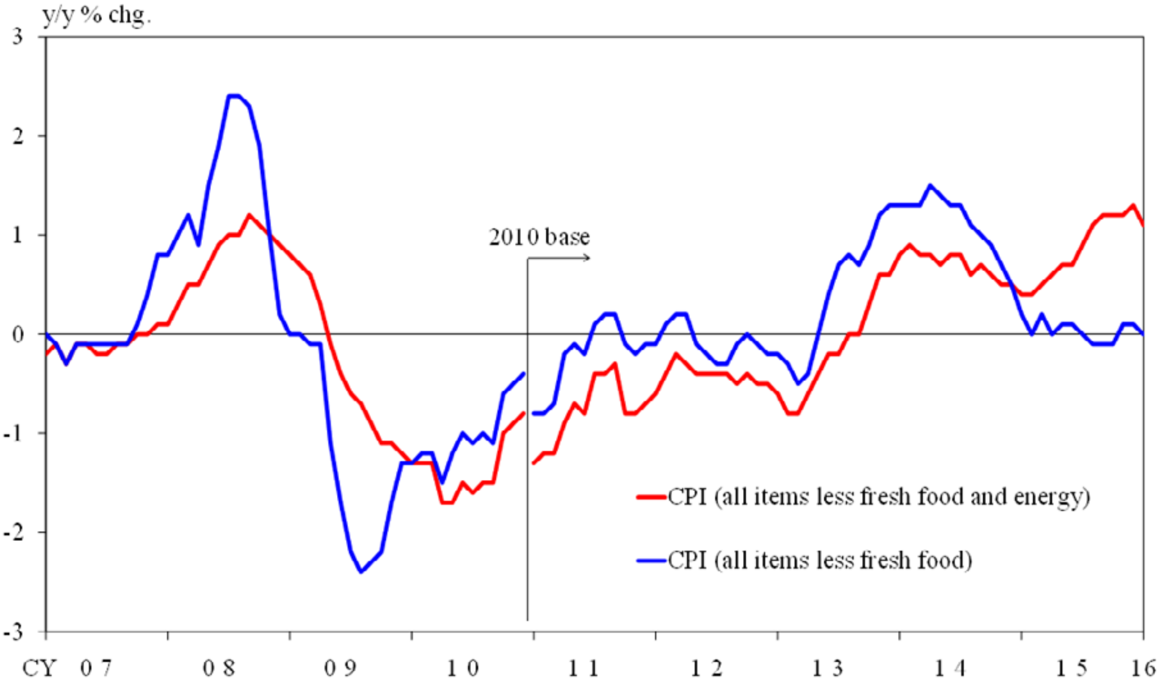
Chart 4

## Consumer Prices




Note: Figures are adjusted to exclude the estimated effects of changes in the consumption tax rate.
Figures for the CPI (all items less fresh food and energy) are calculated by the Research and Statistics Department, Bank of Japan.
Source: Ministry of Internal Affairs and Communications.

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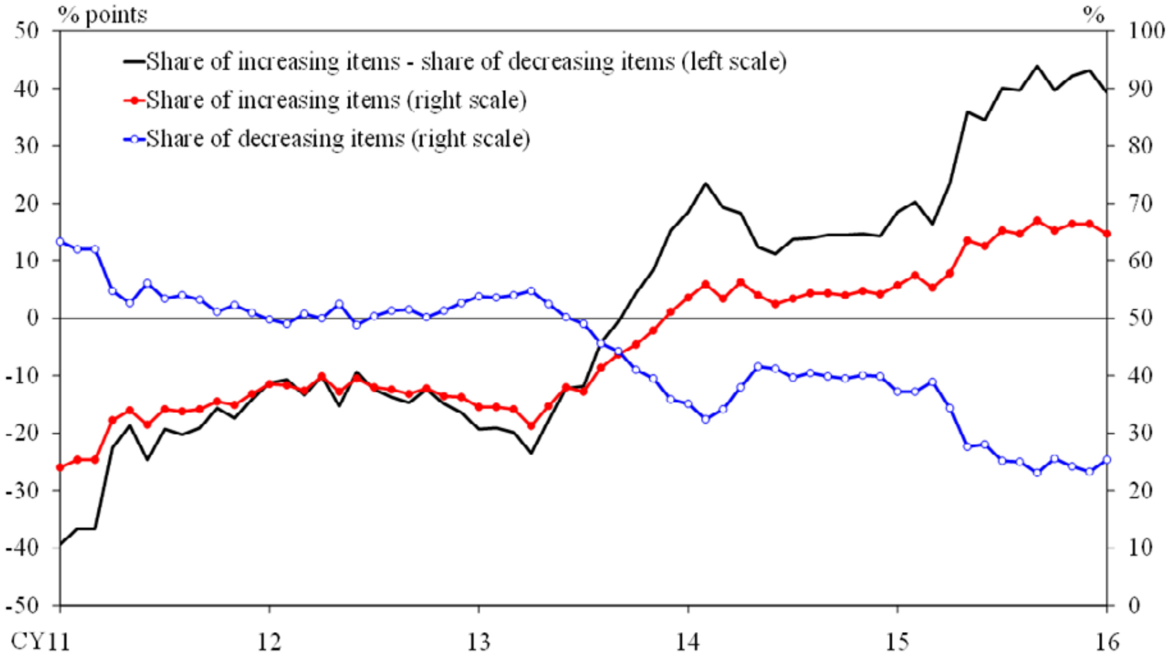
Chart 5

## Price Hikes by Firms




Note: The share of increasing/decreasing items is the share of items in the consumer price index (all items less fresh food) whose price indices increased/decreased from a year earlier. The price indices are adjusted to exclude the estimated effects of changes in the consumption tax rate.
Source: Ministry of Internal Affairs and Communications.

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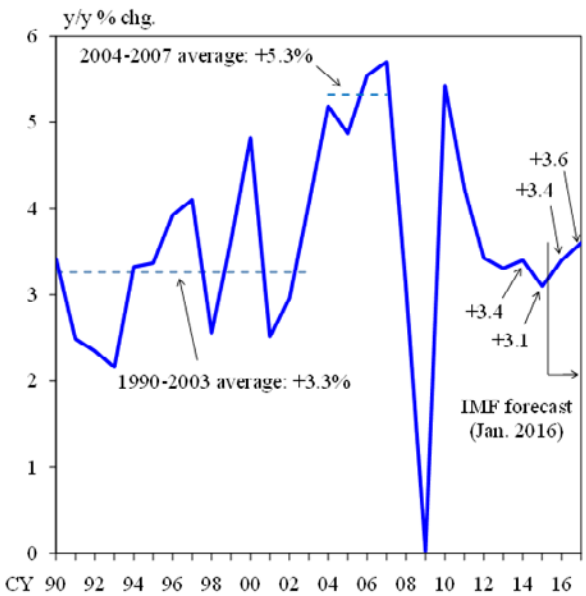
Chart 6

## World Economic Outlook Released by the IMF

*Real GDP Growth Rate*




*Projections for Major Economies*

y/y % chg.

| | 2014 | 2015 | Projections 2016 | Projections 2017 |
|---|---|---|---|---|
| World | 3.4 | 3.1 | 3.4 | 3.6 |
| Advanced Economies | 1.8 | 1.9 | 2.1 | 2.1 |
| United States | 2.4 | 2.5 | 2.6 | 2.6 |
| Euro Area | 0.9 | 1.5 | 1.7 | 1.7 |
| Japan | 0.0 | 0.6 | 1.0 | 0.3 |
| Emerging Market and Developing Economies | 4.6 | 4.0 | 4.3 | 4.7 |
| China | 7.3 | 6.9 | 6.3 | 6.0 |
| ASEAN5 | 4.6 | 4.7 | 4.8 | 5.1 |

Notes: 1. Figures for 2015 are estimates.
2. ASEAN5 are Indonesia, Malaysia, the Philippines, Thailand, and Viet Nam.
Source: IMF.

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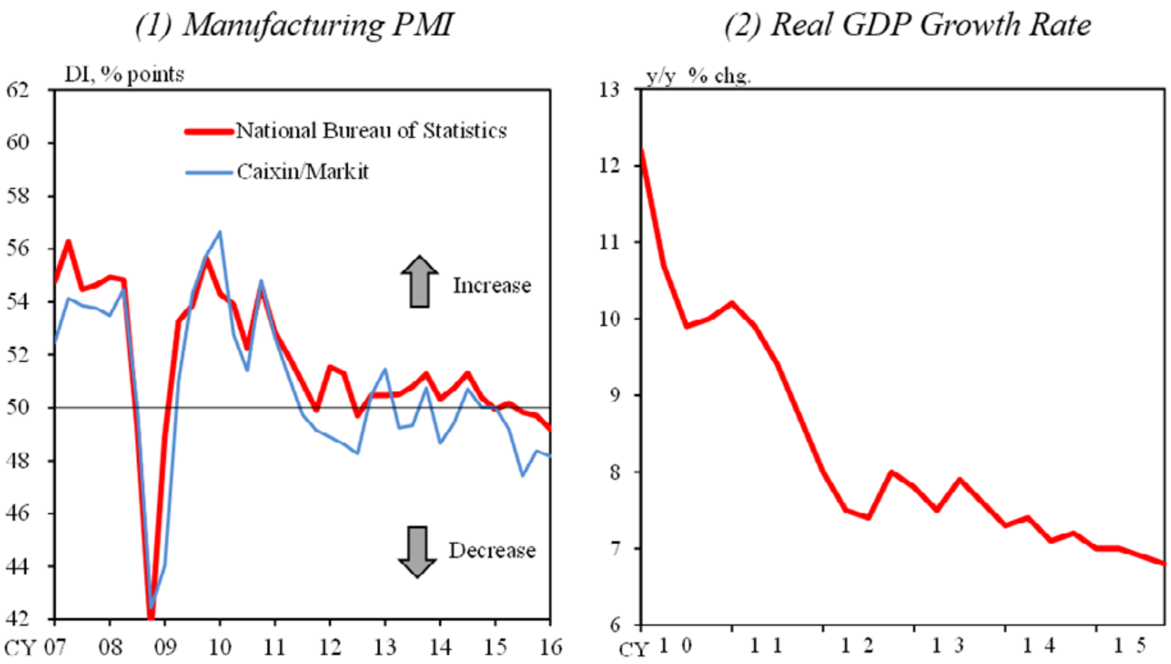
Chart 7

# Chinese Economy




Notes: 1. Figures for Caixin/Markit are based on the Caixin China General Manufacturing PMI.
2. Figures for 2016/Q1 are January-February averages.
Sources: Markit (© and database right Markit Economics Ltd 2016. All rights reserved.); CEIC.

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Chart 8

# Mechanism of "Quantitative and Qualitative Monetary Easing"

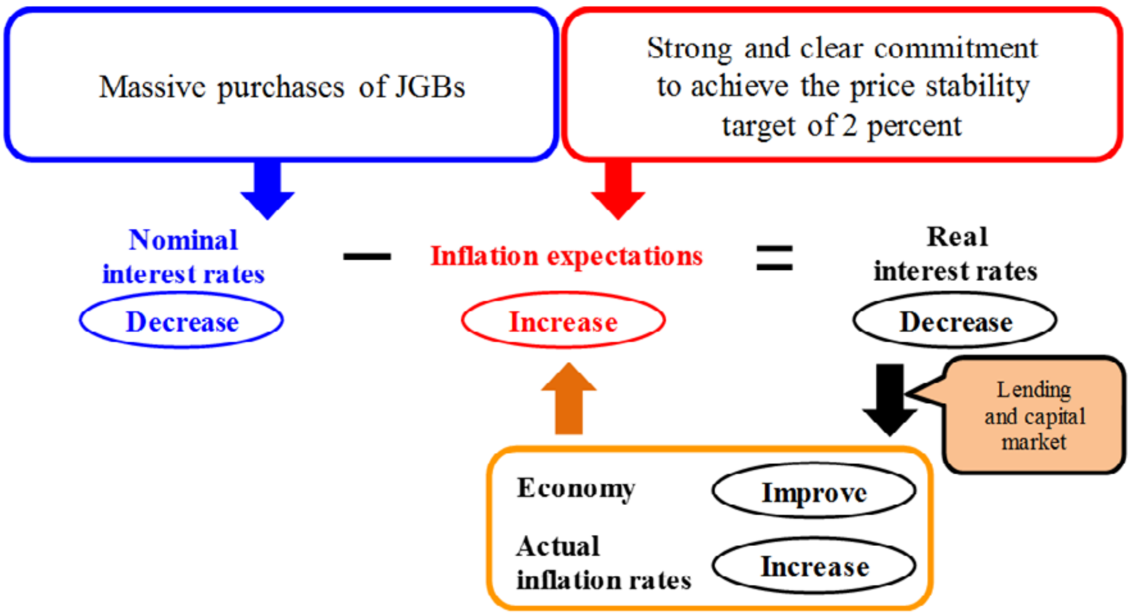


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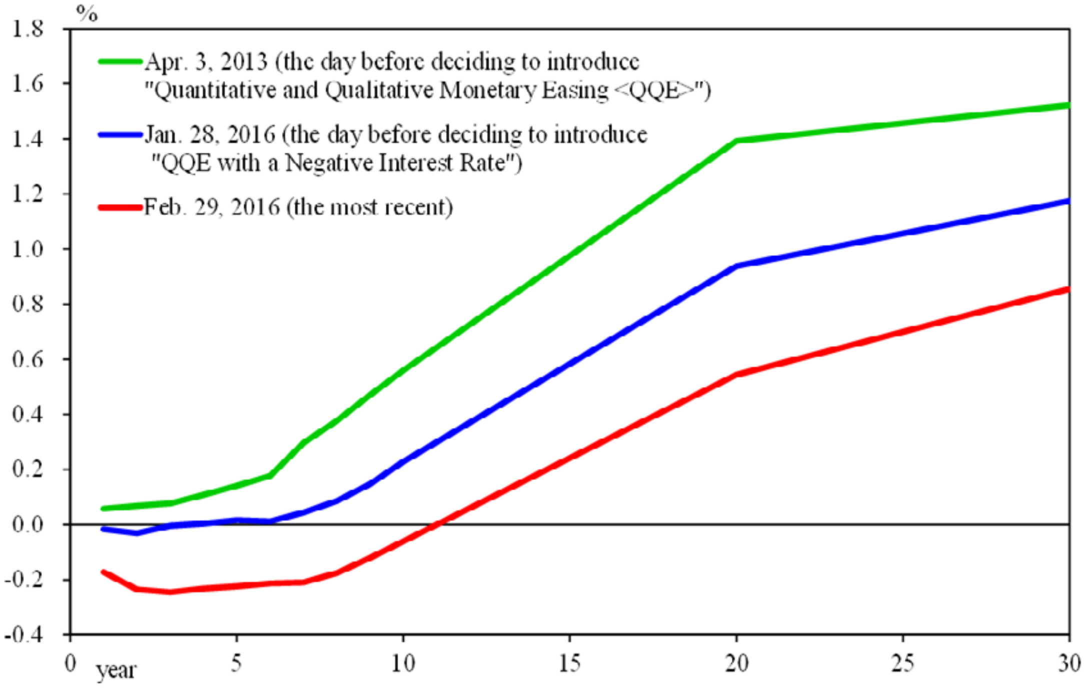
Chart 9

## JGB Yield Curve




Source: Bloomberg.

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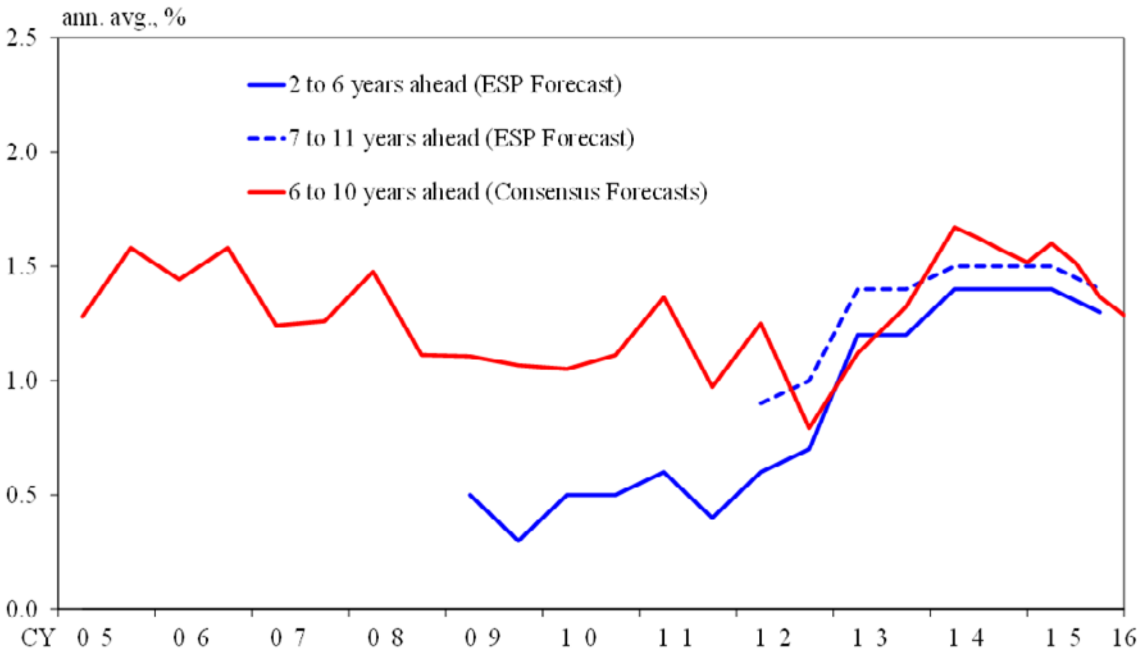
Chart 10

## Inflation Expectations




Note: Figures for the ESP Forecast exclude the effects of the consumption tax hikes.
Sources: Consensus Economics Inc., "Consensus Forecasts"; JCER, "ESP Forecast."

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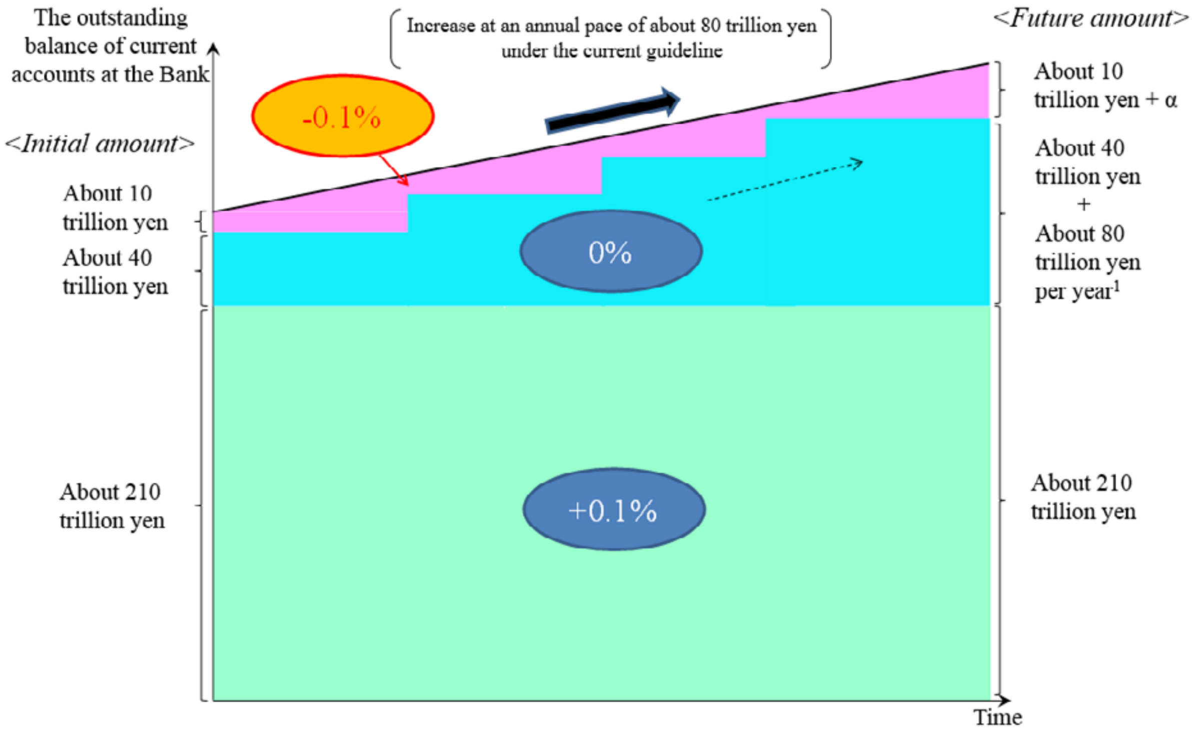
Chart 11

## Three-Tier System




Note: 1. Assuming that the Bank will increase the amount outstanding of the tier to which a zero interest rate is applied at the same pace as the increase in the total outstanding balances of current accounts that financial institutions hold at the Bank, the pace of increase will be about 80 trillion yen per year.

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Chart 12

## Summary of Negative Interest Rate Policies in Europe

| | Euro area | Denmark | Switzerland | Sweden |
|---|---|---|---|---|
| Policy rate | Rate on deposit facility, etc. | Certificates of deposit rate | Swiss franc Libor (3M) | Repo rate[1] |
| Timing when the decision was made | June 2014 | July 2012<br>September 2014 | December 2014 | February 2015 |
| Central bank's debt to which interest is applied, and its rate | Minimum reserve: 0.05%<br>Deposit facility, etc.: -0.3% | Current account deposit<br>Under or at the limit: 0%<br>Over the limit[2]: -0.65% | Current account deposit<br>Under or at the limit: 0%<br>Over the limit: -0.75% | Main operation with the certificates: -0.5%<br>Fine-tuning operation: -0.6%<br>Deposit facility: -1.25% |

Notes: 1. The Riksbank issues Riksbank certificates at the same rate as the repo rate.
2. Current account deposits exceeding the individual limits are converted into certificates of deposit issued by the Danmarks Nationalbank.
Sources: Central banks of respective areas and countries.

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